UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,908	07/24/2003	Axel Von Bergen	13909-119001 / 2003P00132	1208

			EXAMINER
32864	7590	10/18/2006	BRADLEY, MATTHEW A

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ART UNIT	PAPER NUMBER
2187	

DATE MAILED: 10/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 August 2006*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2

August 2006 has been entered.

Claim Status

Claims 1-24 remain pending and are ready for examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims **1-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over

McMahon et al. (U.S. 5,784,699), hereinafter referred to as McMahon, and in view of

Chung (U.S. 7,007,149), hereinafter referred to as Chung.

As per independent claims **1** and **11**, McMahon teach,

- o outputting a request from an application to an operating system for

  allocation of a block of memory by the operating system to the application;

  (Column 5 lines 25-27)

    o   accessing the block of memory for the application; (Column 5 lines 30-39).

McMahon does not explicitly teach dividing a memory block into frames and further into instances.

Chung teach,

    o   dividing the block of memory into a plurality of frames, with each of the plurality of frames operable to store an indexing structure associated with an attribute of a data record; dividing each of the frames into a plurality of instances, with each of the plurality of instances operable to store an index node of the indexing structure; and associating the attribute with the plurality of instances for data storage using the plurality of instances. (Column 3 lines 17-26 as shown in Figures 1-3).

McMahon and Chung are analogous art because they are from the same field of endeavor namely, memory allocation.

At the time of invention, it would have been obvious to one of ordinary skill in the art, having both the teachings of McMahon and Chung before him/her to combine the memory block dividing technique of Chung with McMahon for the benefit of efficiently dividing memory to store multiple pieces of data to use limited memory area effectively and efficiently.

The suggestion for doing so would have been that, previously unoccupied memory areas are converted into usable memory for other data (Column 4 lines 26-27 of Chung). Chung further states that the present invention of Chung provides a method for efficiently using a limited memory area (Column 2 lines 1-3 of Chung).

Therefore, it would have been obvious to combine McMahon with Chung for the benefit of efficiently dividing memory to store multiple pieces of data for efficiently using a limited memory area to obtain the invention as specified in claims 1-24.

As per dependent claims **2** and **12**, the combination of McMahon and Chung teach, allocating a block of memory that begins on a page boundary (Column 3 lines 28-37 of McMahon). *The Examiner notes that a free list is present in the system of McMahon. As shown in the table in Column 6 of McMahon, the dynamic memory allocator, in the form of these free lists, catalogs various free blocks of memory by size. Accordingly, when an allocation takes place by the dynamic memory allocator, for example of the 16-byte size, the memory allocated will begin on the 16-byte boundary.*

As per dependent claim **3** and **13**, the combination of McMahon and Chung teach, wherein the size of the block of memory is determined by a coding parameter associated with the application (Column 3 lines 6-8 of McMahon).

As per dependent claims **4** and **14**, the combination of McMahon and Chung teach, wherein dividing the block of memory into frames includes identifying a first page boundary within the block of memory (Column 3 lines 28-37 of McMahon). *The Examiner notes that a free list is present in the system of McMahon. As shown in the table in Column 6 of McMahon, the dynamic memory allocator, in the form of these free lists, catalogs various free blocks of memory by size thereby indicating a boundary for each size that is maintained.*

As per dependent claims **5** and **15**, the combination of McMahon and Chung teach, wherein dividing the block of memory into frames further includes designating a

portion of the block of memory before the first page boundary as unused (Column 6 lines 34-37 of McMahon). *The Examiner notes that as discussed supra and with respect to the instant citation, the allocator is able to divide the memory block and release the remainder of the block as free space. Accordingly, the allocator designates a portion of the block of memory as unused.*

As per dependent claims **6** and **16**, the combination of McMahon and Chung teach, wherein a size of each frame is determined by a coding parameter (Column 3 lines 6-8 of McMahon).

As per dependent claims **7** and **17**, the combination of McMahon and Chung teach, wherein a size of each frame is determined by a page size used by the operating system (Column 5 lines 8-21 of McMahon). *The Examiner notes that the allocator allocates virtual pages that originate from the operating system. Accordingly, the size of each frame is determined by the operating system's page size upon allocation.*

As per dependent claims **8** and **18**, the combination of McMahon and Chung teach, wherein dividing a block of memory into frames includes: determining a last page boundary within the block of memory; and designating a portion of the block of memory after the last page boundary as unused (Column 3 lines 28-37 of McMahon). *The Examiner notes that a free list is present in the system of McMahon. As shown in the table in Column 6 of McMahon, the dynamic memory allocator, in the form of these free lists, catalogs various free blocks of memory by size thereby indicating a boundary for each size that is maintained. Additional memory not fitting into the size constraints would be left as unused.*

As per dependent claims **9** and **19**, the combination of McMahon and Chung

teach, wherein a single type of data is stored in the block of memory (Column 3 lines 6-

8 of McMahon). *The Examiner notes that the allocator of McMahon allocates memory*

to requesting programs of the operating system. The system designates each block

that is allocated as used after allocation thereby eliminating reallocation of the block to a

different program. Accordingly, the system of McMahon allows for a single type of data

to be stored in the allocated block of memory.

As per dependent claims **10** and **20**, the combination of McMahon and Chung

teach, wherein data from a fast query system is stored in the instances (Column 3 lines

6-8 of McMahon).

As per independent claim **21**, the combination of McMahon and Chung teach,

> *The Examiner incorporates herein by reference herein the rejections and*
>
> *citations made supra with respect to claims 1 and 11 as well as the additional*
>
> *limitation mentioned infra not present in claims 1 or 11.*

> o   populating the instances with the data elements (Column 3 lines 6-8 of
>
>   McMahon).

As per dependent claim **22**, the combination of McMahon and Chung teach,

wherein associating the application-determined instance type with the application-

determined block of memory comprises associating a single application-determined

instance type with the application-determined block of memory (Column 3 lines 6-8 of

McMahon).

As per dependent claim **23**, the combination of McMahon and Chung teach, removing the data elements; and returning the block of memory to the operating system (Column 11 lines 62-65 of McMahon). *The Examiner notes that in the system of McMahon, the realloc() function call allocates a new block of memory and frees the original memory block. This process of allocating a new block teaches the instant limitation of removing the data elements. Once the block is freed, the dynamic memory allocator will find this block upon future searches.*

As per dependent claim **24**, the combination of McMahon and Chung teach, returning the block of memory to a buffer; and determining after a predetermined period of time that the block of memory is no longer required by the application (Column 11 lines 62-65 of McMahon).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew Bradley whose telephone number is (571) 272-8575. The examiner can normally be reached on 6:30-3:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald A. Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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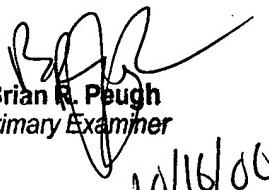
Brian R. Pleugh
Primary Examiner

10/16/06